

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-7 have been canceled and claims 8-23 have been added as follows:

Listing of Claims:

Claims 1-7 (canceled)

Claim 8 (new): An expander comprising a cylinder, a shaft having an eccentric portion, a roller which is fitted to said eccentric portion and which eccentrically rotates inside said cylinder, a closing member for closing both end surfaces of said cylinder, a vane for partitioning a space formed by said cylinder, said roller and said closing member into a plurality of working chambers, a suction hole through which working fluid flows into said working chamber, and a discharge hole through which the working fluid is discharged from said working chamber into a discharge space, wherein said discharge hole is provided with a differential pressure regulating valve which is operated by a difference between pressure in said working chamber and pressure in said discharge space.

Claim 9 (new): The expander according to claim 8, wherein said differential pressure regulating valve is closed when the pressure in said working chamber is lower than the pressure in said discharge space.

Claim 10 (new): The expander according to claim 9, wherein said differential pressure regulating valve is a reed valve.

Claim 11 (new): The expander according to claim 9, wherein said differential pressure regulating valve has a circular conical valve portion.

Claim 12 (new): The expander according to claim 8, wherein fluid which expands from liquid phase or supercritical phase to gas-liquid two-phase is used as the working fluid.

Claim 13 (new): The expander according to claim 12, wherein the expander is utilized in a heat pump cycle which uses carbon dioxide as the working fluid.

Claim 14 (new): The expander according to claim 13, wherein a shaft of said expander is directly connected to a shaft of a compressor.

Claim 15 (new): The expander according to claim 9, wherein fluid which expands from liquid phase or supercritical phase to gas-liquid two-phase is used as the working fluid.

Claim 16 (new): The expander according to claim 10, wherein fluid which expands from liquid phase or supercritical phase to gas-liquid two-phase is used as the working fluid.

Claim 17 (new): The expander according to claim 11, wherein fluid which expands from liquid phase or supercritical phase to gas-liquid two-phase is used as the working fluid.

Claim 18 (new): The expander according to claim 15, wherein the expander is utilized in a heat pump cycle which uses carbon dioxide as the working fluid.

Claim 19 (new): The expander according to claim 16, wherein the expander is utilized in a heat pump cycle which uses carbon dioxide as the working fluid.

Claim 20 (new): The expander according to claim 17, wherein the expander is utilized in a heat pump cycle which uses carbon dioxide as the working fluid.

Claim 21 (new): The expander according to claim 18, wherein a shaft of said expander is directly connected to a shaft of a compressor.

Claim 22 (new): The expander according to claim 19, wherein a shaft of said expander is directly connected to a shaft of a compressor.

Claim 23 (new): The expander according to claim 20, wherein a shaft of said expander is directly connected to a shaft of a compressor.